

## CAFO WPDES Compliance Report (6-17-14)

Inspection date: April 24, 2014

Inspection type: Compliance / Water Sampling

Operation Name: Ranovael Dairy LLC

WPDES Permit No. 0062821-01-0

Operation Address: 1244 County Line Rd (County Rd U), De Pere, WI

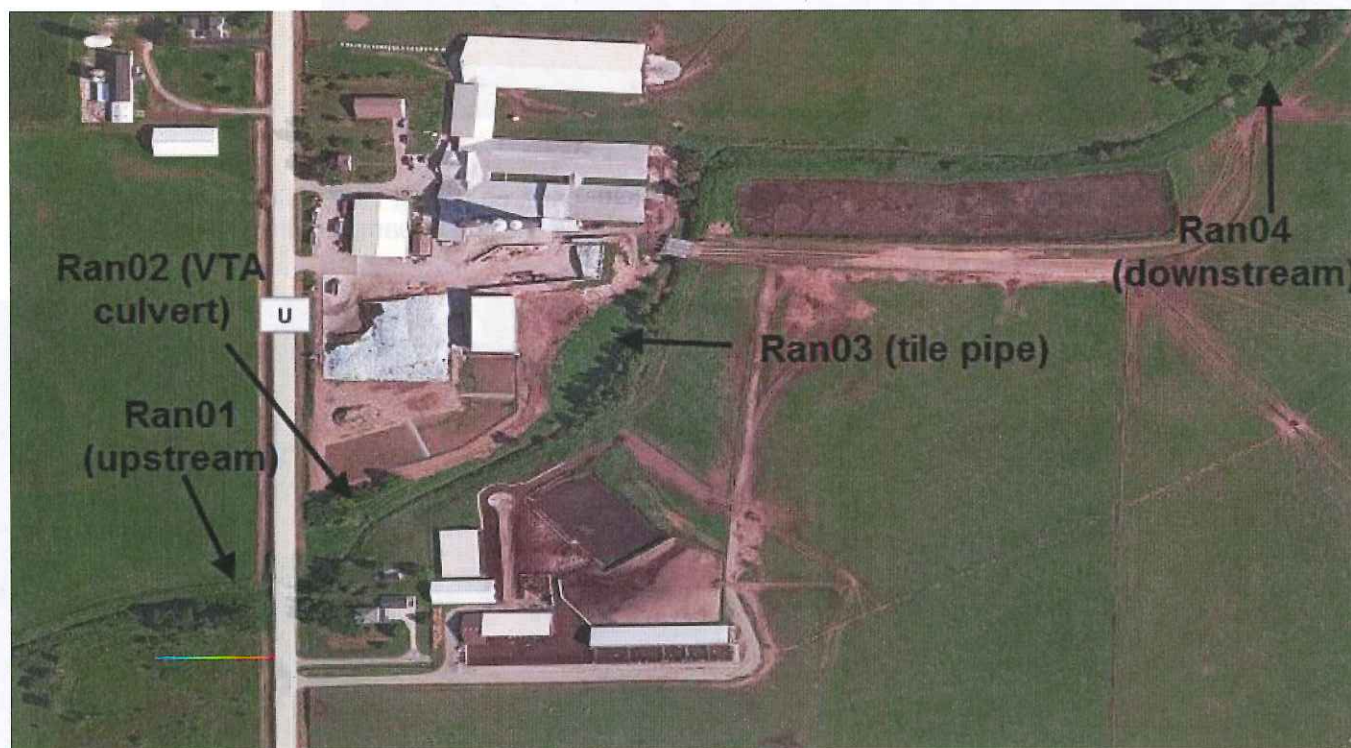
Report Writer: Casey Jones, DNR Agricultural Runoff Management Specialist



Ryan Yelle (DNR Agricultural Specialist) and Jones arrived at Ranovael Dairy at approximately 10:30AM with the intent to take water samples to document any discharge points from the production site into Dutchman's Creek. Ray VandenElzen, owner, was notified that DNR would be onsite. It was raining during inspection.

### Water Sampling Summary

Photo 1: Overview of water sample locations



Ranovael Dairy's production area is split by Dutchman's Creek. On the west side is the freestall barns and feed storage area. The east side has the manure storages and heifer feedlot/housing area. Pasture lots are also located on the eastern side of the creek.



### Upstream Sample – Ran01

Sample “Ran01” was taken on the west side of the County Road U bridge crossing. Water clarity was good.



Photo 2: View at sample location looking east under bridge crossing—could see stream bottom.

### VTA Sample – Ran02

Sample “Ran02” was taken at the outlet of the vegetated treatment area (VTA). There is a culvert located at the end of the VTA that discharges directly into Dutchman’s Creek. At time of sampling the water looked fairly clear and there was no obvious odor.



Photo 3 (left): Close view of culvert outlet from VTA.  
Photo 4 (right): Looking south at flow path from culvert into Dutchman’s Creek.



### Tile Pipe Sample – Ran03

Sample "Ran03" was taken directly from tile pipe discharge that was discovered while inspecting areas along the stream. The discharge from the tile pipe was cloudy and odorous. Downstream of tile pipe discharge the stream water clarity was poor.

Photo 5: View looking west from eastern side of streambank at the PVC tile pipe discharge into Dutchman's Creek. Note the plume where discharge enters stream (upstream on right).



Photo 6: View from west side of streambank where tile pipe discharges. View of sample bottles with discolored discharge.

Photo 7: Source of tile pipe discharge is storm water manhole in photo foreground. Better diversions and housekeeping practices are required; plans will be necessary to address discharge.





### Downstream Sample – Ran04

Sample “Ran04” was taken downstream just east of waste storage facility. Water clarity was noticeably less clear than the upstream sample location.

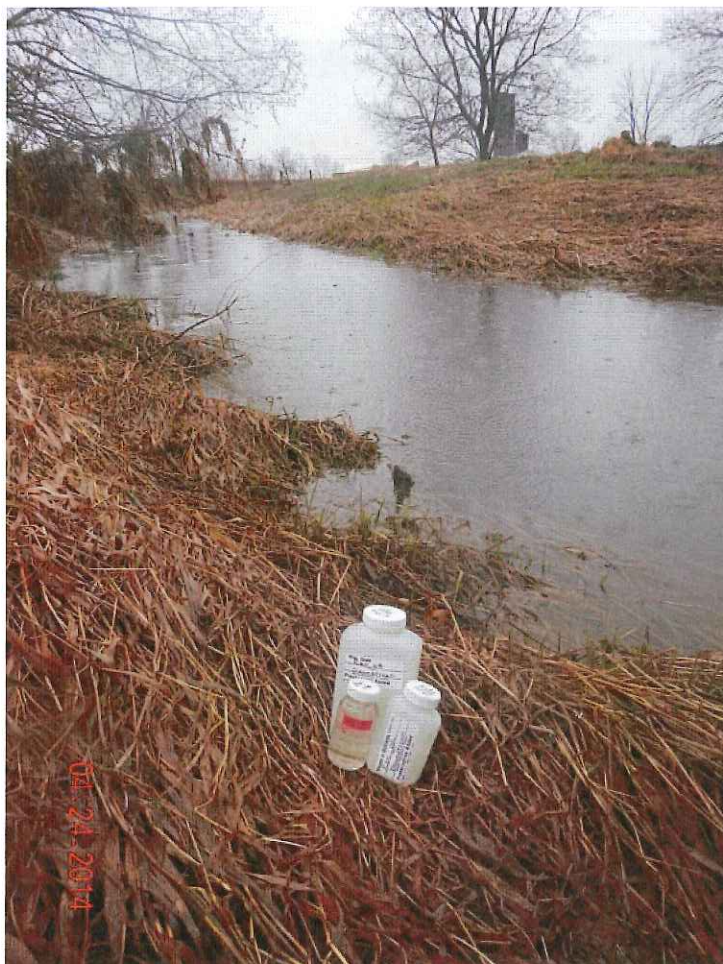


Photo 8: Looking west at downstream sample location.



Photo 9 Close view of cloudy condition of stream water downstream of production site.

**Water sample results summary (lab sheets attached to report)**

	RAN-01 (upstream)	RAN-02 (VTA)	RAN-03 (tile pipe)	RAN-04 (downstream)
Coliform, fecal (CFU/100ml)	10	10	5200	200
Enterococci Enterolert (#/100ml)	21	252	21420	143
E. Coli Colilert (#/100ml)	10	<1	5760	91
Nitrogen NO3+NO2 Diss (mg/l)	6.28	0.36	0.154	6.13
Nitrogen NH3-N Diss (mg/l)	ND	0.238	12.9	0.479
Nitrogen Kjeldahl Total (mg/l)	1.24	3.34	46	2.93
Phosphorus Total (mg/l)	0.182	3.12	12.5	0.596
BOD 5 Day (mg/l)	ND	ND	816	34.1

Water sample results confirm a discharge is occurring from the Ranovael Dairy production site. The permit prohibits discharges to navigable waters from the production area.



### **Production Site Observations**

During water sampling, site conditions of feedlots, waste storage and feed storage areas were observed.

#### **Feedlot and Pasture Areas**

In general, the pasture lot areas appear to be well-managed. However, the lane and other heavy use areas used by cattle to get to the pasture may be causing discharges to stream (see brown arrows in Photo 9). All feedlot areas must have total containment of runoff into storage; there are some areas near heifer buildings that need to be addressed with clean water diversions and containment. Earth lots near stream must be permanently abandoned. Heavy use areas must be stabilized so runoff to stream does not occur.

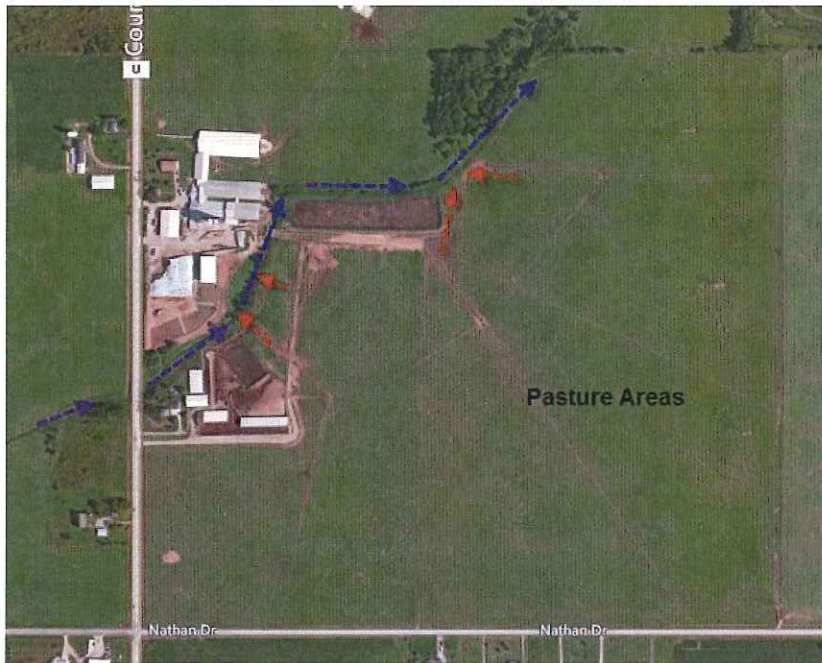


Photo 10: Air photo overview of discharge areas from lots and pasture areas.



Photo 11: Looking south at lot area east of stream (tree-lined area). Fencing and lot should be completely abandoned due to proximity to stream.





Photo 12: View of cattle lane area and culvert for upland drainage. During inspection, there was not enough flow to take a water sample in this location. However, due to site conditions it is likely feedlot runoff is discharging into adjacent stream.



Photo 13: Looking south at heavy use area near cattle lane. Drainage ditch is directly adjacent that discharges into stream.





Photo 14: Looking east at heavy use area in pasture adjacent to Dutchman's Creek. Brown arrow shows location of channelized flow path to stream. At time of inspection not enough flow was present to take a water sample.

### **Waste Storage**

The large waste storage facility appeared to have safe manure operating levels at time of inspection. Markers had not been reinstalled and ruts and overgrown vegetation (reed canary grass) had not been addressed. Heifer waste storage facility was not inspected.



Photo 15: Looking east at waste storage facility.

### **Feed Storage Area**

Feed storage area consists of two storage areas for haylage and corn silage. Most of runoff is directed into collection tank. Tank is currently manually pumped into a portable tanker and then driven around and offloaded into storage or land applied. A permanent transfer line exists with some modifications to system, could pump tank content directly to waste storage. Based on observations and conversations with VandenElzen tank is not being pumped enough. Some of the runoff is also entering a storm water manhole and discharging directly into stream (sample Ran-03). Some areas of vegetated treatment area (VTA) need maintenance. There are also discharge concerns with the end of the VTA having a culvert directly discharging into stream.





Photo 16 (left): Looking east along feed storage area. Walls are not sealed and leachate leaks out and commingles with storm water. Photo 17 (right): View looking south toward silage pile.



Photo 17 (left): Looking at runoff water bypassing full collection tank and flowing into VTA. Photo 18 (right): View of transfer line for feed storage runoff collection system under cattle bridge over stream.



Photo 19 (left): Looking west at concrete spreader bar for feed storage runoff not collected into storage. Water was tinted brown. Photo 20 (right): Looking south at VTA that has some ponding and channelized flow paths that need attention.





Photo 21 (left): View looking northeast at VTA.

Photo 22 (right): View of culvert opening at end of VTA that discharges into stream.



# Wisconsin Department of Natural Resources

## Laboratory Report

04/28/2014

Lab: 113133790

Sample: 129267001

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**Laboratory:** Wisconsin State Laboratory of Hygiene

DNR ID: 113133790

2601 Agriculture Dr

Madison

WI 53718

Phone : 800-442-4618

Fax Phone : 608-224-6213

### Sample:

Field #: RAN-01

Sample #: 129267001

Collection Start: 04/24/2014 10:32 am

Collection End: 04/24/2014 10:32 am

Collected by: CASEY JONES

Waterbody/Outfall Id:

ID #:

ID Point #:

County: Brown

Account #: WT093

Sample Location: RANOVAEEL DAIRY - UPSTREAM

Sample Description: UPSTREAM WEST OF BRIDGE

Sample Source: Surface Water

Sample Depth: 0.5F

Date Reported: 04/26/2014

Sample Status: COMPLETE

Project No:

Sample Reason: Investigation

### Analyses and Results:

Analysis Method		Analysis Date	Lab Comment			
SM9222D		04/26/2014	Analyzed past the 6 hours holding time: Method Federal Register July 2003 analyzed on 04/25/14 1247			
Code	Description	Result	Units	LOD	Report Limit	LOQ
99836	COLIFORM, FECAL, MEMBRANE FILTER, MFC AGAR, WET WT	10	CFU/100ml	10		10

Analysis Method		Analysis Date	Lab Comment			
Federal Register July 2003		04/26/2014	Analyzed past the 6 hours holding time: Method Federal Register July 2003 analyzed on 04/25/14 1247			
Code	Description	Result	Units	LOD	Report Limit	LOQ
99119	ENTEROCOCCI ENTEROLERT	21	/100 ML	3		3

Analysis Method		Analysis Date	Lab Comment			
SM9223BMPN		04/26/2014	Analyzed past the 6 hours holding time: Method Federal Register July 2003 analyzed on 04/25/14 1247			
Code	Description	Result	Units	LOD	Report Limit	LOQ
99188	E COLI COLILERT QUANTITRAY MPN	10	/100 ML			1



**Wisconsin Department of Natural Resources**  
**Laboratory Report**

04/28/2014

Lab: 113133790

Sample: 129268001

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**Laboratory:** Wisconsin State Laboratory of Hygiene

DNR ID: 113133790

2601 Agriculture Dr

Madison

WI 53718

Phone : 800-442-4618

Fax Phone : 608-224-6213

**Sample:**

Field #: RAN-02

Sample #: 129268001

Collection Start: 04/24/2014 10:40 am

Collection End: 04/24/2014 10:40 am

Collected by: CASEY JONES

Waterbody/Outfall Id:

ID #:

ID Point #:

County: Brown

Account #: WT093

Sample Location: RANOVael DAIRY - VTA

Sample Description: VTA CULVERT

Sample Source: Surface Water

Sample Depth: 0.33F

Date Reported: 04/26/2014

Sample Status: COMPLETE

Project No:

Sample Reason: Investigation

**Analyses and Results:**

Analysis Method		Analysis Date	Lab Comment			
SM9222D		04/26/2014	Analyzed past the 6 hours holding time: Method Federal Register July 2003 analyzed on 04/25/14 1247			
Code	Description	Result	Units	LOD	Report Limit	LOQ
99836	COLIFORM, FECAL, MEMBRANE FILTER, MFC AGAR, WET WT	10	CFU/100ml	10		10

Analysis Method		Analysis Date	Lab Comment			
Federal Register July 2003		04/26/2014	Analyzed past the 6 hours holding time: Method Federal Register July 2003 analyzed on 04/25/14 1247			
Code	Description	Result	Units	LOD	Report Limit	LOQ
99119	ENTEROCOCCI ENTEROLERT	252	/100 ML	3		3

Analysis Method		Analysis Date	Lab Comment			
SM9223BMPN		04/26/2014	Analyzed past the 6 hours holding time: Method Federal Register July 2003 analyzed on 04/25/14 1247			
Code	Description	Result	Units	LOD	Report Limit	LOQ
99188	E COLI COLILERT QUANTITRAY MPN	<1	/100 ML			1



**Wisconsin Department of Natural Resources**  
**Laboratory Report**

04/28/2014

Lab: 113133790

Sample: 129269001

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**Laboratory:** Wisconsin State Laboratory of Hygiene  
2601 Agriculture Dr  
Madison WI 53718  
Phone : 800-442-4618 Fax Phone : 608-224-6213

DNR ID : 113133790

**Sample:**

Field #: RAN-03  
Collection Start: 04/24/2014 11:20 am  
Collected by: CASEY JONES  
ID #:  
County: Brown  
Sample Location: RANOVael DAIRY - TILE  
Sample Description: TILE PIPE DISCHARGE  
Sample Source: Surface Water  
Date Reported: 04/26/2014  
Project No:

Sample #: 129269001  
Collection End: 04/24/2014 11:20 am  
Waterbody/Outfall Id:  
ID Point #:  
Account #: WT093  
Sample Depth: 0F  
Sample Status: COMPLETE  
Sample Reason: Investigation

**Analyses and Results:**

Analysis Method		Analysis Date	Lab Comment			
SM9223BMPN		04/26/2014	Analyzed past the 6 hours holding time: Method Federal Register July 2003 analyzed on 04/25/14 1247			
Code	Description	Result	Units	LOD	Report Limit	LOQ
99188	E COLI COLILERT QUANTITRAY MPN	5760	/100 ML			100

Analysis Method		Analysis Date	Lab Comment			
Federal Register July 2003		04/26/2014	Analyzed past the 6 hours holding time: Method Federal Register July 2003 analyzed on 04/25/14 1247			
Code	Description	Result	Units	LOD	Report Limit	LOQ
99119	ENTEROCOCCI ENTEROLERT	21420	/100 ML	100		100

Analysis Method		Analysis Date	Lab Comment			
SM9222D		04/26/2014	Analyzed past the 6 hours holding time: Method Federal Register July 2003 analyzed on 04/25/14 1247			
Code	Description	Result	Units	LOD	Report Limit	LOQ
99836	COLIFORM, FECAL, MEMBRANE FILTER, MFC AGAR, WET WT	5200	CFU/100ml	100		100



**Wisconsin Department of Natural Resources**  
**Laboratory Report**

04/28/2014

Lab: 113133790

Sample: 129272001

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**Laboratory:** Wisconsin State Laboratory of Hygiene

DNR ID: 113133790

2601 Agriculture Dr

Madison

WI 53718

Phone : 800-442-4618

Fax Phone : 608-224-6213

**Sample:**

Field #: RAN-04

Sample #: 129272001

Collection Start: 04/24/2014 11:05 am

Collection End: 04/24/2014 11:05 am

Collected by: CASEY JONES

Waterbody/Outfall Id:

ID #:

ID Point #:

County: Brown

Account #: WT093

Sample Location: RANOAEL DAIRY - DOWNSTREAM

Sample Description: DOWNSTREAM

Sample Source: Surface Water

Sample Depth: 0.3F

Date Reported: 04/26/2014

Sample Status: COMPLETE

Project No:

Sample Reason: Investigation

**Analyses and Results:**

Analysis Method		Analysis Date	Lab Comment			
Federal Register July 2003		04/26/2014	Analyzed past the 6 hours holding time: Method Federal Register July 2003 analyzed on 04/25/14 1247			
Code	Description	Result	Units	LOD	Report Limit	LOQ
99119	ENTEROCOCCI ENTEROLERT	143	/100 ML	3		3

Analysis Method		Analysis Date	Lab Comment			
SM9223BMPN		04/26/2014	Analyzed past the 6 hours holding time: Method Federal Register July 2003 analyzed on 04/25/14 1247			
Code	Description	Result	Units	LOD	Report Limit	LOQ
99188	E COLI COLILERT QUANTITRAY MPN	91	/100 ML			1

Analysis Method		Analysis Date	Lab Comment			
SM9222D		04/26/2014	Analyzed past the 6 hours holding time: Method Federal Register July 2003 analyzed on 04/25/14 1247			
Code	Description	Result	Units	LOD	Report Limit	LOQ
99836	COLIFORM, FECAL, MEMBRANE FILTER, MFC AGAR, WET WT	200	CFU/100ml	100		100



# Wisconsin Department of Natural Resources

## Laboratory Report

06/12/2014

Lab: 113133790

Sample: 129279001

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**Laboratory:** Wisconsin State Laboratory of Hygiene

DNR ID: 113133790

2601 Agriculture Dr

Madison

WI 53718

Phone: 800-442-4618

Fax Phone: 608-224-6213

### Sample:

Field #: RAN-01

Sample #: 129279001

Collection Start: 04/24/2014 10:32 am

Collection End: 04/24/2014 10:32 am

Collected by: CASEY JONES

Waterbody/Outfall Id:

ID #:

ID Point #:

County: Brown

Account #: WT093

Sample Location: RANOVael DAIRY - UPSTREAM

Sample Description: WEST OF BRIDGE

Sample Source: Surface Water

Sample Depth: 0.5FT

Date Reported: 06/11/2014

Sample Status: COMPLETE

Project No:

Sample Reason: Investigation

### Analyses and Results:

Analysis Method		Analysis Date		Lab Comment			
EPA 353.2		05/12/2014					
Code	Description	Result	Units	LOD	Report Limit	LOQ	
631	NITROGEN NO3+NO2 DISS (AS N)	6.28	MG/L	0.0570		0.183	

Analysis Method		Analysis Date		Lab Comment			
EPA 365.1		05/02/2014					
Code	Description	Result	Units	LOD	Report Limit	LOQ	
665	PHOSPHORUS TOTAL	0.182	MG/L	0.00500		0.0160	

Analysis Method		Analysis Date		Lab Comment			
EPA 350.1		05/12/2014					
Code	Description	Result	Units	LOD	Report Limit	LOQ	
608	NITROGEN NH3-N DISS	ND	MG/L	0.0150		0.0480	

Analysis Method		Analysis Date		Lab Comment			
SM5210B		04/25/2014					
Code	Description	Result	Units	LOD	Report Limit	LOQ	
310	BOD 5 DAY	ND	MG/L	2.00		2.00	

Analysis Method		Analysis Date		Lab Comment			
EPA 351.2		04/29/2014					
Code	Description	Result	Units	LOD	Report Limit	LOQ	
625	NITROGEN KJELDAHL TOTAL	1.24	MG/L	0.140		0.400	



**Wisconsin Department of Natural Resources**  
**Laboratory Report**

06/12/2014

Lab: 113133790

Sample: 129279002

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**Laboratory:** Wisconsin State Laboratory of Hygiene

DNR ID 113133790

2601 Agriculture Dr

Madison

WI 53718

Phone : 800-442-4618

Fax Phone : 608-224-6213

**Sample:**

Field #: RAN-02

Sample #: 129279002

Collection Start: 04/24/2014 10:40 am

Collection End: 04/24/2014 10:40 am

Collected by: CASEY JONES

Waterbody/Outfall Id:

ID #:

ID Point #:

County: Brown

Account #: WT093

Sample Location: RANOVael DAIRY - VTA

Sample Description: VTA CULVERT

Sample Source: Surface Water

Sample Depth: 0.33FT

Date Reported: 06/11/2014

Sample Status: COMPLETE

Project No:

Sample Reason: Investigation

**Analyses and Results:**

Analysis Method		Analysis Date		Lab Comment		
EPA 350.1		05/12/2014				
Code	Description	Result	Units	LOD	Report Limit	LOQ
608	NITROGEN NH3-N DISS	0.238	MG/L	0.0150		0.0480

Analysis Method		Analysis Date		Lab Comment		
EPA 351.2		04/29/2014				
Code	Description	Result	Units	LOD	Report Limit	LOQ
625	NITROGEN KJELDAHL TOTAL	3.34	MG/L	0.140		0.400

Analysis Method		Analysis Date		Lab Comment		
SM5210B		04/25/2014				
Code	Description	Result	Units	LOD	Report Limit	LOQ
310	BOD 5 DAY	ND	MG/L	2.00		2.00

Analysis Method		Analysis Date		Lab Comment		
EPA 365.1		05/02/2014				
Code	Description	Result	Units	LOD	Report Limit	LOQ
665	PHOSPHORUS TOTAL	3.12	MG/L	0.0250		0.0800

Analysis Method		Analysis Date		Lab Comment		
EPA 353.2		05/12/2014				
Code	Description	Result	Units	LOD	Report Limit	LOQ
631	NITROGEN NO3+NO2 DISS (AS N)	0.360	MG/L	0.0190		0.0610

# Wisconsin Department of Natural Resources

## Laboratory Report

06/12/2014

Lab: 113133790

Sample: 129279003

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**Laboratory:** Wisconsin State Laboratory of Hygiene

DNR ID: 113133790

2601 Agriculture Dr

Madison

WI 53718

Phone : 800-442-4618

Fax Phone : 608-224-6213

### Sample:

Field #: RAN-03

Sample #: 129279003

Collection Start: 04/24/2014 11:20 am

Collection End: 04/24/2014 11:20 am

Collected by: CASEY JONES

Waterbody/Outfall Id:

ID #:

ID Point #:

County: Brown

Account #: WT093

Sample Location: RANOAEL DAIRY - TILE

Sample Description: TILE PIPE DISCHARGE

Sample Source: Other Waste

Sample Depth: 0FT

Date Reported: 06/11/2014

Sample Status: COMPLETE

Project No:

Sample Reason: Investigation

### Analyses and Results:

Analysis Method		Analysis Date	Lab Comment			
EPA 365.1		05/02/2014	SAMPLE MATRIX CHANGED DUE TO PARTICULATE CONTENT., Analyzed past the 28 days holding time: Method EPA 351.2 analyzed on 06/04/14 0000			
Code	Description	Result	Units	LOD	Report Limit	LOQ
665	PHOSPHORUS TOTAL	12.5	MG/L	0.500		1.60

Analysis Method		Analysis Date	Lab Comment			
EPA 351.2		06/05/2014	SAMPLE MATRIX CHANGED DUE TO PARTICULATE CONTENT., Analyzed past the 28 days holding time: Method EPA 351.2 analyzed on 06/04/14 0000			
Code	Description	Result	Units	LOD	Report Limit	LOQ
625	NITROGEN KJELDAHL TOTAL	46.0	MG/L	2.80		8.00

Analysis Method		Analysis Date	Lab Comment			
SM5210B		04/25/2014	5 Day BOD, Total: Only one dilution meets method DO depletion criteria.   SAMPLE MATRIX CHANGED DUE TO PARTICULATE CONTENT., Analyzed past the 28 days holding time: Method EPA 351.2 analyzed on 06/04/14 0000			
Code	Description	Result	Units	LOD	Report Limit	LOQ
310	BOD 5 DAY	816	MG/L	2.00		2.00

Analysis Method		Analysis Date	Lab Comment			
EPA 353.2		05/12/2014	SAMPLE MATRIX CHANGED DUE TO PARTICULATE CONTENT., Analyzed past the 28 days holding time: Method EPA 351.2 analyzed on 06/04/14 0000			
Code	Description	Result	Units	LOD	Report Limit	LOQ



**Wisconsin Department of Natural Resources**  
**Laboratory Report**

06/12/2014

Lab: 113133790

Sample: 129279003

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<i>Code</i>	<i>Description</i>	<i>Result</i>	<i>Units</i>	<i>LOD</i>	<i>Report Limit</i>	<i>LOQ</i>
631	NITROGEN NO3+NO2 DISS (AS N)	0.154	MG/L	0.0190		0.0610

<i>Analysis Method</i>	<i>Analysis Date</i>	<i>Lab Comment</i>
EPA 350.1	05/12/2014	<b>SAMPLE MATRIX CHANGED DUE TO PARTICULATE CONTENT.,Analyzed past the 28 days holding time: Method EPA 351.2 analyzed on 06/04/14 0000</b>

<i>Code</i>	<i>Description</i>	<i>Result</i>	<i>Units</i>	<i>LOD</i>	<i>Report Limit</i>	<i>LOQ</i>
608	NITROGEN NH3-N DISS	12.9	MG/L	0.300		0.960

# Wisconsin Department of Natural Resources

## Laboratory Report

06/12/2014

Lab: 113133790

Sample: 129279004

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**Laboratory:** Wisconsin State Laboratory of Hygiene

DNR ID: 113133790

2601 Agriculture Dr

Madison

WI 53718

Phone: 800-442-4618

Fax Phone: 608-224-6213

### Sample:

Field #: RAN-04

Sample #: 129279004

Collection Start: 04/24/2014 11:05 am

Collection End: 04/24/2014 11:05 am

Collected by: CASEY JONES

Waterbody/Outfall Id:

ID #:

ID Point #:

County: Brown

Account #: WT093

Sample Location: RANOAEL DAIRY - DOWNSTREAM

Sample Description: DOWNSTREAM

Sample Source: Surface Water

Sample Depth: 0.3FT

Date Reported: 06/11/2014

Sample Status: COMPLETE

Project No:

Sample Reason: Investigation

### Analyses and Results:

Analysis Method		Analysis Date		Lab Comment			
EPA 353.2		05/12/2014					
Code	Description	Result	Units	LOD	Report Limit	LOQ	
631	NITROGEN NO3+NO2 DISS (AS N)	6.13	MG/L	0.0570		0.183	

Analysis Method		Analysis Date		Lab Comment			
EPA 350.1		05/12/2014					
Code	Description	Result	Units	LOD	Report Limit	LOQ	
608	NITROGEN NH3-N DISS	0.479	MG/L	0.0150		0.0480	

Analysis Method		Analysis Date		Lab Comment			
SM5210B		04/25/2014		5 Day BOD, Total: Only one dilution meets method DO depletion criteria.			
Code	Description	Result	Units	LOD	Report Limit	LOQ	
310	BOD 5 DAY	34.1	MG/L	2.00		2.00	

Analysis Method		Analysis Date		Lab Comment			
EPA 365.1		05/02/2014					
Code	Description	Result	Units	LOD	Report Limit	LOQ	
665	PHOSPHORUS TOTAL	0.596	MG/L	0.00500		0.0160	

Analysis Method		Analysis Date		Lab Comment			
EPA 351.2		04/29/2014					
Code	Description	Result	Units	LOD	Report Limit	LOQ	
625	NITROGEN KJELDAHL TOTAL	2.93	MG/L	0.140		0.400	



